WORKING AGAINST DISASTER

We work in mostly engineered environments, such as offices or manufacturing plants, air traffic control centers, airplanes, automobiles, and trucks.

Making a poor decision with the way we set up our environment may result in inefficiency and cause a company to go bankrupt; cause injury to employees, customers, or innocent bystanders; the loss of one or more lives; or damage to the planet itself. We might place a glass jar containing a dangerous chemical in a place where it might fall and break; arrange and order our supplies inefficiently so that we are making numerous unnecessary trips to the warehouse using excessive fossil fuels; lift heavy objects without proper support; have a process so highly automated that if/when it fails the human operators do not know what to do.

To prevent inefficiency, injury, and perhaps damage to the planet, we need to design the environment (and all of the equipment in it) to be safe and easy for people to use and be sure people in the environment are well-trained and follow safety procedures, but can also think and react.

There is a profession called human factors, ergonomics, or user experience designers. These professionals study how people think and process information (psychology), how people move (anthropometrics), and engineering design to make the engineered part of our environment as safe as possible. Other people use equipment combined with nature in their jobs and are dependent upon the equipment being made as safe as possible. These people may also need training in both use of the equipment and the natural environment.

Earth was endangered almost forty years ago when the Three Mile Island Nuclear Power Plant in Pennsylvania nearly leaked radioactive waste. The near-disaster was due in large part to equipment that was not designed for operators to use safely.

Relatively recently, Capt. Chesley Sullenberger safely landed a US Airways passenger jet in the Hudson River in freezing weather; everyone survived and injuries were minimized. The captain was well-trained in emergency procedures. He recognized immediately that his plane encountered birds and the engines were no longer functioning. He then relied upon his lifetime of studying good and poor human decisions. He was familiar with the geography where he was flying to the point that he knew exactly where to land the plane so that ferry boats could quickly rescue the passengers. He knew how to prioritize, saving people rather than trying to save the plane. He effectively communicated to his passengers and crew that they needed to brace.

In more normal operations, pilots can and do use checklists to be sure planes are ready for operations. Less dramatically, when I pack my supplies for my programs at client sites, I use checklists to be sure I have packed everything needed. During my programs, I show people what happens when they try to move too fast and do not, for example, allow enough distance to apply brakes to a moving vehicle in an emergency and risk crashing the vehicle. Still, professionals cannot be so dependent upon the checklists that they cannot think and function effectively in novel situations.

In summary, the key points to remember are that our Earth will be preserved best if:

1) Equipment is properly designed so that people can use it;

2) People are properly trained to use the equipment and work in the natural environment; and

3) People are also properly prepared to be able to think, not just follow checklists, so that they can respond quickly in an emergency.

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